UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/586,414 | 07/19/2006 | Rustom S. Kanga | 2156-301A | 3134 |

7590 10/19/2009

John L Cordani
Carmody and Torrance
P O Box 1110
50 Leavenworth Street
Waterbury, CT 06721-1110

| EXAMINER | |
|---|---|
| HAMILTON, CYNTHIA | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1795 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 10/19/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

---

*Ex parte* RUSTOM S. KANGA

---

Appeal 2009-006927
Application 10/586,414
Technology Center 1700

---

Oral Hearing Held: Tuesday, September 15, 2009

---

Before JEFFREY T. SMITH, MICHAEL P. COLAIANNI, and JEFFREY B. ROBERTSON, *Administrative Patent Judges.*

ON BEHALF OF THE APPELLANTS:

JOHN L. CORDANI
Carmody and Torrance
P.O. BOX 1110
50 Leavenworth St.
Waterbury, CT 06721-1110

The above-entitled matter came on for hearing on Tuesday, September 15, 2009, commencing at 9:55 a.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Kevin Carr, Notary Public.

JUDGE SMITH: Good morning, Mr. Cordani. Today we will be creating a transcript of today's proceedings and it will become an official part of the record. As you are aware, you have 20 minutes to present your arguments and after you settle and you may begin.

MR. CORDANI: Yes, your honor. I would like to thank you for allowing me your attention this morning. I'd like to make an introduction to note to you a few points that I'd like to make in my argument. My first point in this case is the Examiner attempted to assemble and cobble together 15 different references in an attempt to show obviousness with regard to the claimed invention. I think that the number of references and the way in which they are proposed to be assembled I think reveals the use of hindsight in attempting to assemble the various elements of the claims via these 15 different references.

Secondly, the Examiner has noted that she didn't believe that we opposed the combination of the three references Kanga, Fan and Cushner. I would like to note to you that we do in fact believe that combination is inappropriate, and I will explain to you why.

Three, I would like to point out to you that the fact that the use of collimated light is not the same as specifying that the light hitting the

point of impact, especially on a curved surface, is impacting it at a 90-degree angle. Obviously collimated light is parallel light rays but they can impact at any angle, unless arranged specifically to contact at a perpendicular angle.

Four, I'd like to point out the only references that involved imaging on curved surfaces, Ohba, Nellison, Kitamura, Carroll and Speichner are not analogous to the claimed invention and I will explain why. And five none of the references cited reveal any of the following three elements; specifically none of the references reveal the use of multiple light sources with collimators arranged around a curved surface in a way to preserve the perpendicularity of the impact of the light. None of the references reveal rotating the object during the exposure in such a way as to preserve the perpendicularity of the impact of the light. And none of the references reveal exposing the photopolymer through the cylinder wall in order to form a floor.

JUDGE ROBERTSON: Counsel I'd like to stop you right here before you get into your presentation.

MR. CORDANI: Yes your honor.

JUDGE ROBERTSON: You're limited at oral arguments to arguments that you have made in your Brief, so to the extent that your arguments are not in your Briefs, that is something that we will not consider in rendering our decision.

MR. CORDANI: Yes your honor. I believe we have made the arguments.

JUDGE ROBERTSON: So I might ask you as you go forward to point that out to us just for clarification purposes.

MR. CORDANI: Yes your honor. Thank you. So the first point that I would like to expound upon is the combination of 15 different references. It's not reasonable to assume that the skilled artisan would assemble bits and pieces from 15 references, many of which do not represent commercial designs to achieve the claimed invention. Only hindsight would allow such a combination. So for instance the Examiner has used the Kanga reference to reveal a flat printing plate with a very thin flexible floor that is exposed through the floor where the floor is doped with a radiation-absorbing compound. That's the proposition that Kanga stands for. She has combined that with the generic references from Fan and Cushner that printing sleeves, meaning round printing plates, exist. The Appellant doesn't argue about the fact that round printing plates existed at the time. There is no view in that regard. What we'd like to point out is that although round printing plates existed, exposing them through the tube through the floor was not normally done. And it's not referenced in either Fan or Cushner.

JUDGE ROBERTSON: Okay, could you point to where you're making this argument in your brief?

MR. CORDANI: Can I come back to that at the end? Because I'll have to go back into the Brief.

JUDGE ROBERTSON: Well, I think it would be useful to do it now because otherwise we could get into a long discussion about arguments that we won't be able to consider in rendering our decision.

MR. CORDANI: Okay. I have to say I don't know specifically where that argument was made in the Brief so I guess I will defer that argument. I will remake it later and point it out to you later if necessary.

Three, the Examiner has pulled the concept of an abatable layer from the Fan reference, and then she has pulled the generic idea of the use of collimated light and various baffles to achieve collimated light from 12 different references. But the references I'll show you quite honestly are not applicable to the way she has attempted to combine them with the three primary references. I point out to you that none of the references reveal perpendicularity on a curved surface. None of the references reveal the use of multiple light sources or rotation of the surface while maintaining perpendicularity.

The second point I'd like to make is that collimation is not the same as maintaining perpendicularity at the point of impact, especially on a curved surface. And so as you might see from our Application the means of maintaining perpendicularity at the point of impact are either to assemble a variety of light sources and collimators around the surface so that at various points of impact perpendicularity is either maintained or substantially maintained, or using one bank of light sources with a perpendicular impact and then rotating the cylinder. We believe that none of the references that were cited reveal either of those solutions in maintaining perpendicularity.

Although the use of collimated light is known in general -- and the Examiner has correctly and appropriately pointed out 12 different references that you reveal collimated light in various ways -- their application in this particular instance and the use of collimated light to maintain perpendicularity around the surfaces of different things is not revealed. For example in the Nellissen reference the Examiner points out an off contact mask is used. You can see from the Nellissen reference that primarily the light that is penetrating through the mask is penetrating at oblique angles.

The purpose of collimating the light is not to maintain perpendicularity with the surface, but instead is used to accurately reflect the light back that needs to be reflected back from the off contact mask. If the light was not collimated you wouldn't be able to accurately predict where that impact is going to be after it hits the reflector. So the purpose there for collimation is completely different. It has nothing to do with perpendicularity to the surface. It has to do with the accuracy with which you can predict the reflection from the reflector.

JUDGE ROBERTSON: Can I ask you about Nellissen?

MR. CORDANI: Yes, your honor.

JUDGE ROBERTSON: I think one of the things that the Examiner points out is your claims require substantial perpendicularity.

MR. CORDANI: Yes.

JUDGE ROBERTSON: The Answer illustrates how some of your substantial perpendicularity would be at some sort of an angle that is

not exactly perpendicular and sort of equates that to I guess FIG. 2 of Nellissen which is a similar angle hitting the surface. So I guess what I'm asking you is would not the substantial perpendicularity in your claims be covered by Nellissen's angle there?

MR. CORDANI: I would respectfully say no.

JUDGE ROBERTSON: Okay.

MR. CORDANI: If you look at FIG. 2, the primary contact angles there are deeply oblique. In my view the word substantially perpendicular really has to do with -- So I said the way of achieving perpendicularity is through obtaining multiple light sources and collimators around the arc way surface. Maintaining theoretical perpendicularity is essentially impossible because it's point by point. At every point you move around the surface it's going to be off a little bit.

Substantial perpendicularity to me means the engineering capability to be able to engineer lights around that surface with collimators to achieve as close to perpendicularity as engineering can achieve. FIG. 2 in Nellissen reveals that the primary angle -- And I would say two things. One is most of those light rays hitting the surface are deeply oblique. They're not anywhere near perpendicular. You can see the rays coming through the mask, not the one single ray it happens to be getting off of the reflector; most of those rays are completely oblique.

The second thing I would say is Nellissen in no way teaches hitting the surface in a perpendicular way. The purpose here is to be able to predict where that reflected ray is going to hit the surface. It's not to hit it

perpendicular. It's to hit it in the proper spot. And the reason for that is this off-contact mask and the reflector.

JUDGE SMITH: Excuse me. But if the purpose is to hit the target in a particular way, if you want a perpendicular wouldn't that be the particular way that you want it hit the target?

MR. CORDANI: Not necessarily. It's not the angle that's important it's the point that it's important so you're able to predict where it's going to hit. I mean you can predict at any angle as long as you know the angle, then you're able to predict it.

JUDGE SMITH: Right. Then looking at Nellissen FIG. 2 --

MR. CORDANI: Yes.

JUDGE SMITH: Just for translation purposes we'll say that it's hitting approximately between 9 and 10 o'clock if you will. If you were to move that back to 9 o'clock then that would be perpendicular to the target correct?

MR. CORDANI: I guess.

JUDGE SMITH: I'm presuming that you're making flat planes on your cylindrical target that you'd want to hit perpendicularly?

MR. CORDANI: I don't understand, your honor.

JUDGE SMITH: In other words because you're dealing with a circle you have to have a flat plane if you want it to be perpendicular.

MR. CORDANI: If it was going to be perfectly -- or just a point. A theoretical point.

JUDGE SMITH: Correct. So --

MR. CORDANI: I would direct your attention to instead to FIG. 3 in Nellissen. That clearly shows you that Nellissen is not concerned with the perpendicularity of the impact. You can see there that the rays there are reflecting at all different angles, and that Nellissen is not proposing perpendicularity. He's merely proposing to use of an off contact mask and to use collimation so that he can predict the point where the various rays are going to hit.

JUDGE SMITH: What I was taking from Nellissen and what the Examiner appears to be citing it for is the precision. That's the reason why you want collimation so you can predict where it's going to hit.

MR. CORDANI: I guess that's true except I would point out to you that in our case it's not precision that matters here. In our case, if you will remember, we have a mask that is intimately associated with the surface of the product. So there's a mask that has already been ablated -- the only areas that are going to be exposed to light. The mask is absorbing all the UV radiation except in the areas where it's been ablated. The only areas that are going to absorb UV light are the areas where the mask has been ablated. And so accuracy of the point where the light hits it in our invention is immaterial. It doesn't matter. The light can hit anywhere. If it hits in a spot where it's not supposed to hit, the mask will absorb it.

The only place where it's going to penetrate is in the area where the mask has been ablated. And so it's not the accuracy where the light is hitting, because light is hitting all over the entire surface in our invention.

It's hitting everywhere. It's not hitting in particular spots. It hits everywhere and is absorbed by the mask except for the mask has been ablated.

The purpose of perpendicularity in our invention is driven because of the thickness of the photopolymer material around it. So you want the rays to be as perpendicular as possible so that where the mask is ablated the rays will go directly through and form a very straight photopolymer curing, as opposed to going through, and then in the thickness of the photopolymer, diverging and causing things to widen or spread.

JUDGE ROBERTSON: But in that regard doesn't the Examiner cite a lot of this art -- and some of it appears to be cumulative in nature -- but doesn't the Examiner cite a lot of this art to show that collimation of light is used to produce finer image results?

MR. CORDANI: Actually I would take issue with that Your Honor. I would say this. The primary references that she uses, for instance Fan and Cushner, don't discuss collimated light at all. They use general mercury arc lights that are not collimated and have no concern whatsoever with collimation.

JUDGE ROBERTSON: Yet -- but the Examiner does not rely on those references.

MR. CORDANI: I agree. The Plambeck reference, which he does rely upon, specifically recommends the use of non-collimated light of oblique rays because Plambeck is actually looking to do the opposite and spread the light underneath the mask so that he gets a wider foot, and therefore better strength in the photopolymers. I would argue it least that a

few of the references, including Plambeck specifically, teach specifically against using collimated light. The collimated light sources, quite honestly, which are cited by the Examiner -- let me quickly go through them. She uses quite a few of them.

So for instance Gush. Gush is suggesting imaging a flat layer of liquid photopolymer -- so this is a flat layer of liquid photopolymer -- and it recommends the use of a point source or collimation. The reason why it recommends it is because it has an off contact mask. Gush doesn't want to put the mask on the liquid photopolymer layer because it's going to stick and get contaminated. So it has an off contact mask and therefore recommends collimation so that once it penetrates the mask it's not going to diverge and cause problems with imaging.

Werber is the exact same thing is Gush. It's a flat liquid layer with an off contact mask and that's why it recommends collimation.

Gelbart is a flat plate again. It uses collimation, actually again similar to Nellissen. Gelbart uses collimation to be able to predict -- it has a reflector -- and it's going to be able to predict where the light is going to be hitting on the surface.

Ohba, which is actually one of the primary references the Examiner references, is completely non-analogous. Ohba reveals use of no mask at all. It's a direct-write imaging proposal where it has a scanning head and it uses either a point source -- a laser -- or collimated light. And the reason it uses collimated light or a point source is because there is no mask. Of course he has to use a point source or collimated light because he needs

to predict precisely where the light is going to hit in order to directly image the surface. There's no mask.

JUDGE ROBERTSON: I think the Examiner is relying on these principles as a general principle that you can use collimated light to affect a more refined result.

MR. CORDANI: I guess I don't argue with that proposal; the fact that you can use collimated light to affect a result. But combining that with the proposition, not only are you using collimated light, but you're ensuring that the collimated light is hitting in a perpendicular angle is another story. The references in my view don't reveal that last concept of controlling the collimation so that you have uniformed perpendicularity.

I'll go on. Most of the references she cites, for example Karol and Speicher, again these are references where the light is being reflected by, in this case, a conical mirror. So of course you need to use collimated light because you need to be able to predict the angle of reflection from the conical mirror. And the other thing I'll point out is that when you have a conical mirror there's no way of assuring that you're going to have all the light reflecting back so that it hits perpendicular to the surface. It's just not going to happen with a conical mirror in that case.

So I would suggest to you -- or my point that I would like to make to you is -- that collimation is known. There's no doubt about it. The Examiner points out 12 different references that reveal collimated light. Collimation is known to affect the result. What's not known is the use of collimation to ensure perpendicularity of the point of impact, particularly

when you have a curved surface. Secondly, what's not known is assembling a variety of light sources and collimators around a cylindrical surface, again to ensure perpendicularity or to rotate the surface to ensure perpendicularity of the point of impact.

JUDGE ROBERTSON: Well could you address the Wier reference specifically? Column 1 lines 53 through 54 or 55. Somewhere around there.

MR. CORDANI: Hold on one second.

JUDGE ROBERTSON: It says, "Disclosed herein is a device and method for directing the ultraviolet light perpendicularly against the photopolymer plate." Now I understand that that is a flat plate.

MR. CORDANI: Yes.

JUDGE ROBERTSON: But the concept of perpendicularly hitting the plate appears to be there.

MR. CORDANI: That is true, except it is done in a very different way. And it's done in a way that wouldn't work in a cylindrical device. It wouldn't work in this device. We'll put it that way. So Wier is establishing the concept of using a polarizing filter. A polarizing filter is placed between the photopolymer and the mask. So you have the photopolymer -- a flat plate in this case -- a polarizing filter or film, and then the mask on top of that. So in our case the mask -- and the claims require -- that the mask be on top of and in intimate contact with the photopolymer layer. So achieving what Wier has achieved is not possible in the design that we that have.

JUDGE ROBERTSON: I'd like to ask you about that also. In FIG. 4 Wier appears to show, and the Examiner points this out that the polarizer is above the mask.

MR. CORDANI: I have to say I'm not able to comment on that right now. One minute. My understanding of Wier when I read it was that the polarizer was between the mask and the --

JUDGE ROBERTSON: Well that's one embodiment but Wier also discloses another embodiment.

MR. CORDANI: No. So in FIG. 4 from what I'm reading here described in column 3, lines 40 to 45, what's below the polarizer is not a mask. It's a translucent film.

JUDGE ROBERTSON: Okay.

MR. CORDANI: So I guess I would respectively suggest that for now I don't agree. And so I guess what I would like to come back around with is the Examiner has combined various references and in our view there are a few things that aren't revealed that's not reasonable to assume. The back exposure through the wall of the cylindrical tube is not disclosed and is not suggested by the references she cites.

2) Again I go back to the idea that using collimated light in such a way on a curved surface to maintain perpendicularity I don't believe is disclosed in the method and way in which we do it. It's not suggested either.

3) I would say that the arrangement of light sources and polarizer's around the cylindrical surface is not disclosed or suggested so as

to maintain perpendicularity or the rotation in the alternative. And lastly I would say that the references -- I guess lastly I'd like to sort of go back into the Examiner's mind. As she has pointed out -- Could you tell me how much time I have left?

JUDGE SMITH: You have about three minutes.

MR. CORDANI: Three minutes. Very good. I'll finish. I'm sorry. So I'd like to say that those attributes are not disclosed. And so in particular, even if you were to determine that perpendicularity was disclosed or suggested, which I don't think it was, clearly be deep in the claims that reveal this arrangement of light sources and polarizer's around the surface is not disclosed.

Secondly, the rotation concept, which is in the dependent claims, is not disclosed. Third, I would suggest that the combination of being able to back expose through the wall with the perpendicularity and the light sources arranged around it is not disclosed, and it is not reasonable assemble all those concepts from various references. It's just not reasonable. This product is not a commercial product. Although these references have been out there for a long time, it's not come to commercialization this concept that we've proposed. He just doesn't seem reasonable to me to look at 15 references and pick bits and pieces from various parts of them essentially guided by the claims, and that's what I believe happened here. So with that I'll close. Unless you have any further questions, I'll thank you.

JUDGE SMITH: No further questions.

MR. CORDANI: Thank you your honors.

JUDGE SMITH: The case is submitted.

Whereupon, at 10:25 a.m., the proceedings were concluded.